

CLAIMS

What is claimed is:

- 1 1. A digital image capture and processing system, comprising:
2 a lens coupled to a lens control element;
3 an image sensor configured to capture images from the lens; and
4 a memory element and a processor coupled to the lens control element, the
5 memory element including image capture software, where the image capture software
6 cause the lens and the image sensor to capture at least two images, each of the at least
7 two images captured using a varying parameter and stored as a single file, where the at
8 least two images are combined to form a new image having at least one characteristic
9 different from corresponding characteristics of the at least two images.
- 1 2. The system of claim 1, wherein the varying parameter is focus distance.
- 1 3. The system of claim 2, further comprising a user interface associated
2 with the image capture software, where the user interface allows the user of the device
3 to scroll through the at least two images and select one of the images as the new
4 image.
- 1 4. The system of claim 2, further comprising a user interface associated
2 with the image capture software, where the user interface allows the user to combine
3 attributes of the at least two images to form the new image.

1 5. The system of claim 4, wherein the user interface allows the different
2 focus of each of the at least two images to be blended into the new image that includes
3 an apparent focus between the two focus distances.

1 6. The system of claim 5, further comprising:
2 a lens position indicator configured to indicate the position of the lens for each
3 of the at least two images;

4 a focus determination element configured to analyze each of a plurality of
5 regions associated with each of the at least two images, the focus determination
6 element also configured to determine whether each of the plurality of regions are in
7 focus; and

8 where the image capture software assembles each of the in-focus regions into
9 the new image.

1 7. The system of claim 6, further comprising:
2 a depth of field indicator assigned to each of the at least two images, where the
3 depth of field indicator allows a user to determine a depth of field for each of the at
4 least two images.

1 8. The system of claim 7, wherein the user interface includes a depth of
2 field adjustment that allows a user to select the depth of field of the new image from
3 the depth of field of each of the at least two images.

1 9. The system of claim 6, further comprising a distance indicator assigned
2 to each of the regions, the distance indicator configured to assign a distance
3 measurement to an alpha channel for each region.

1 10. The system of claim 9, wherein the user interface further comprises a
2 lens shift and an image plane tilt adjustment.

1 11. The system of claim 1, wherein a first of the at least two images is
2 captured using conventional photography and a second of the at least two images is
3 captured using infrared photography.

1 12. The system of claim 1, wherein the varying parameter is the number of
2 bits used by each pixel in the image sensor.

1 13. A method for operating a digital image capture and processing device,
2 the method comprising the steps of:
3 coupling a lens to a lens control element;
4 coupling an image sensor to the lens;
5 capturing at least two images, each of the at least two images captured using a
6 varying parameter, where the at least two images are combined to form a new image
7 having at least one characteristic different from corresponding characteristics of the at
8 least two images; and
9 storing the at least two images as a single file.

1 14. The method of claim 13, wherein the varying parameter is focus
2 distance.

1 15. The method of claim 14, further comprising the steps of:
2 scrolling through the at least two images; and
3 selecting one of the images as the new image.

1 16. The method of claim 14, further comprising the step of combining
2 attributes of the at least two images to form the new image.

1 17. The method of claim 16, further comprising the step of blending each of
2 the at least two images into the new image that includes an apparent focus between the
3 focus distance of each of the at least two images.

1 18. The method of claim 17, further comprising the steps of:
2 indicating the position of the lens for each of the at least two images;
3 dividing each of the at least two images into a plurality of regions;
4 analyzing each of the regions to determine whether each of the plurality of
5 regions are in focus; and
6 assembling each of the in-focus regions into the new image.

1 19. The method of claim 18, further comprising the steps of:
2 assigning a depth of field indicator to each of the at least two images; and
3 determining a depth of field for each of the at least two images.

1 20. The method of claim 19, further comprising the step of using a depth of
2 field adjustment to select the depth of field of the new image from the depth of field of
3 each of the at least two images.

1 21. The method of claim 18, further comprising the step of assigning a
2 distance indicator to each of the regions, the distance indicator configured to assign a
3 distance measurement to an alpha channel for each region.

1 22. The method of claim 21, further comprising the step of adjusting lens
2 shift and image plane tilt.

1 23. The method of claim 13, further comprising the steps of:
2 capturing a first of the at least two images using conventional photography; and
3 capturing a second of the at least two images using infrared photography.

1 24. The method of claim 13, further comprising the step of varying the
2 number of bits used by each pixel in the image sensor.

1 25. An image processing system, comprising:
2 an image storage device;
3 at least two similar images contained in the image storage device;
4 a processor coupled to the image storage device;
5 a code segment for processing the at least two similar images, where the at
6 least two similar images are combined to form a new image having at least one
7 characteristic different from corresponding characteristics of the at least two images;
8 and
9 an output element for rendering the new image.

1 26. The system of claim 25, wherein the image processing system is
2 contained within an image capture device such that the at least two similar images are
3 captured by the image capture device and placed in the image storage device.

1 27. The system of claim 26, where the image processing system instructs
2 the image capture device to vary at least one parameter of the image capture device so
3 that the at least two similar images differ due to the variance of the at least one
4 parameter.

1 28. The system of claim 26, wherein the image storage device for one of the
2 at least two similar images is the image sensor of the image capture device.

1 29. The system of claim 25, wherein the at least one characteristic is
2 different depth of field.

1 30. The system of claim 25, wherein the at least one characteristic is
2 different exposure.

1 31. The system of claim 27, wherein the at least one parameter is image
2 illumination.

1 32. The system of claim 25, wherein the at least two similar images differ
2 primarily in focus.

1 33. The system of claim 25, where the at least two similar images differ
2 primarily in color.

1 34. The system of claim 25, wherein a first of the at least two similar
2 images is captured using visible light and the second of the at least two similar images
3 is captured using infrared exposure.